



Pynchon (Ed)

Removal of Tonsillar Hypertrophy by Electro-Cautery Dissection.

Compliments of the Author.

BY

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Read before the Chicago Medical Society, October 6, 1890.

Reprinted from "The Journal of the American Medical
Association," November 22, 1890.



CHICAGO:
PRINTED AT THE OFFICE OF THE ASSOCIATION.
1890.

REMOVAL OF TONSILLAR HYPERTRO- PHY BY ELECTRO-CAUTERY DISSECTION.

The anatomy and physiology of the tonsil I will not attempt in this paper to consider except with brevity. As to size, in the thoroughly normal condition, its presence is hardly perceptible. As usually described in treatises on anatomy it would appear that a moderate degree of hypertrophy has been accepted as the type of perfection. As far back as medical history goes allusions are to be met with concerning the enlarged tonsil, and the means adopted in the attempt at its removal.

The physiology of the tonsil is not thoroughly understood. It has been supposed to be of assistance in lubricating and guiding the bolus of food being swallowed. In civilized life it seems to be devoid of practical use and appears to be but rudimentary, and as a reminder of a something which in prehistoric days may have been required, when man lived on fruits and nuts, and barks of trees, before the art of cooking was discovered. One trite observer has remarked that "the principal use of the tonsil was to absorb poisons." While, in common with trite remarks generally, this one may possess the feature of exaggeration, still I believe it in the main to be worthy of attention. For example, but note the effect, in cases of diphtheria, when the tonsils are prominent, and the increased severity and fatality



therefrom. Enlarged tonsils seem most often to result from exposure and debilitating influences, and from surroundings of unfavorable hygienic condition.

The object of this paper is to call attention to a condition of hypertrophy of the faucial tonsils with which I frequently meet both in clinical and private practice. I do not allude to the usual and well recognized enlarged tonsil of the hyperplastic variety which is so frequently seen, particularly in children, which is resistant to the touch and which, owing to its large size, occludes the faucial passage and materially interferes with both respiration and drainage. Such enlarged tonsils are, I believe, always removed by the educated physician, providing the consent of those closely related can be obtained, and the necessity for the removal of which has been generally conceded by the medical profession. On the contrary, I allude to a condition of the gland wherein it is hypertrophied, and therefore diseased, though the enlargement may be but slight; a condition wherein the hypertrophy is more of the follicles than of the gland, and wherein the tissue, while nodular, is yielding to the touch. According to Sajous, "the increased volume of the hypertrophied tonsil may be hardly noticeable" (p. 287). By the ordinary examination with the use of the tongue depressor it may be difficult to see and, in fact, may even escape the attention of the observer, though if the tongue depressor be forced sufficiently far back, even to the touching of the epiglottis if necessary, the patient can be made to gag, when, by the contraction of the constrictors pharyngeus, these diseased tonsils will be thrown out from between the pillars, and in aggravated cases may be made to meet. When so examined the lacunæ will be observed to be large, and by slight pressure upon the bodies there will

be seen to exude from these openings a cheesy secretion which is not only profuse, but is oft-times of a disagreeable odor, and consists of cholesterin, débris from broken down follicular glands, epithelium, pus corpuscles and other waste matter. When profuse, I believe there is always a tendency towards decomposition. I have observed this secretion to be much more profuse and disagreeable in case of the small hypertrophied tonsil described in this paper than in case of the very much enlarged tonsil. When such condition of the tonsil exists as I am describing, there will be found associated therewith other conditions, some or all of which may at times be present. The saliva in the back part of the mouth is more profuse and frothy than in a normal throat. There is generally present a condition of chronic pharyngitis, and there is frequently given a history of previous attacks of quinsy, and the patient acknowledges himself to be the possessor of a throat abnormally sensitive, which is easily affected by exposure during inclement weather. Unless the patient has been accustomed to pharyngeal and laryngeal manipulations or to the use of gargles or post-nasal sprays, the fauces will be found to be more sensitive than normal, so much so that the induction of gagging previously alluded to will, in fact, be too easily attained, and in many cases, at first, the mere pointing of the tongue depressor at the opened mouth causing nausea. There will generally be given a history of post-nasal catarrh with its usual train of symptoms, including at times a diminution in acuteness of hearing. There will often be observed the coated tongue and tainted breath associated with other symptoms of indigestion. In fact, since I have had my attention particularly drawn to the described diseased condition of the tonsil, I have not seen a patient

so affected whose tongue was not somewhat coated and who did not give some indication of dyspepsia. I believe that in the swallowing of catarrhal and diseased tonsillar secretions we have a frequent cause of chronic gastric catarrh.

If the patient is one who sings or who is accustomed to prolonged use of the voice as, for example, a clergyman, a lawyer or an auctioneer, by inquiry it will be learned that after vocal exertion there comes a condition of huskiness of the voice or even pronounced hoarseness. If the patient be a vocalist and the diseased tonsils be not extremely small, it will be elicited that in the execution of the notes of high register there is a consciousness of greater muscular exertion and strain being required than would seem to be natural.

There is frequently given a history of cough with expectoration, particularly in the morning, of thick mucus from the larynx, often in the form of a small, hard globule which is of bad smell when compressed. There is generally a sensation of roughness of the throat which is in part attributable to the concomitant pharyngitis.

This condition of the tonsils has been by some medical gentlemen appreciated, and means have from time to time been employed for their eradication. Owing to their small size and the difficulty or impossibility of grasping them, the usual operation of tonsillotomy is not available. The process of igni-puncture has been suggested and is practiced by many, which operation consists of entering into the several lacunæ one after the other, and generally not more than three or four at one séance, a cold platinum cautery point and then, after heating the same, cause it to burn its way out. This process is repeated until all of the large follicles have been destroyed, the expectation being that after such partial cauteriza-

tion as described the remainder of the gland will pass away by absorption. The results have been claimed to be satisfactory, though generally a very ragged and bad appearing surface remains.

From my own experience with this operation and from my observation of the experience of others, I am convinced that generally the expectation is not realized. In the case of young children, after a partial tonsillotomy the remainder of the gland is often found to absorb, but in the condition which I have in mind, and which from its nature is most often found in adults, there is a denseness of the tissue which precludes the expectation of even partial absorption. I frequently meet with cases in patients 30, 40 and even 50 years of age. While the tendency in the adult is towards the absorption of hypertrophied tonsillar tissue, I do not believe that such absorption is often complete. On theoretical grounds the further objection to electro-puncture can be made that, while the larger and more prominent follicles are destroyed, there yet remain many smaller follicles which in time may become large, and which even prior to such enlargement are constantly giving forth a secretion which cannot be otherwise than the gland itself, to wit: diseased. Another patent objection is that the ragged surface remaining is a necessary source of irritation by the arresting of particles of food being swallowed, and is furthermore, owing to its roughness, an unfavorable surface for the best production of vocalized sounds.

Another means of eradicating small diseased tonsils is to grasp them with some form of vulsellum forceps, encircle them with a galvano-cautery snare and thus attempt their removal. While such operation may in certain cases prove more satisfactory than the former operation, it is nevertheless not a thorough success. Owing to the

elongated and flattened shape of the diseased tissue the difficulties met with are apparent, and while a portion thereof may be so removed, we are justified in assuming, as before, that the leaving undisturbed of a considerable portion of the abnormal tissue is contraindicated. Another of the physical objections to this mode of procedure is that in certain cases, owing to previous follicular inflammations with resulting suppurations, the projecting surface of the gland is not a favorable tissue for being so grasped as, while the base may be indurated, the surface is soft and easily torn. Another method which has been employed is the dissecting out of the offending tonsil by means of blunt-pointed and curved bistouries. While this method would seem to promise efficiency if prosecuted to a sufficient degree, it is, for obvious reasons, very seldom adopted.

Practitioners generally, even when they have recognized this condition described, have not been disposed to associate therewith the several symptoms which I have enumerated, and too often, realizing the obstacles to be met with in the removal of a gland so well imbedded and carefully surrounded, have preferred to prescribe placebo gargles or astringent applications which can only allay temporary irritation and never produce radical cure. In this condition, when the throat is in a passive state, I generally find the tonsil about flush with the pillars and often quite thoroughly adherent thereto both anteriorly and posteriorly and, furthermore, not infrequently associated with a condition of hypertrophy and infiltration of the pillars. The presence of such condition may in a pronounced case detract two or more cubic inches from the space of the mouth, which can be readily believed to have a material influence upon the voice. Furthermore, during vocalization the pillars, which are normally parallel and

should so remain, are held apart at their middles by the presence of an indurated and unyielding mass which additionally fills a space which in the natural condition is an inverted trough, rendering undoubted help in the formation of certain of the voice sounds.

Believing that in such cases the indication is to thoroughly and completely remove the diseased tissue, and finding that the ways and methods heretofore known and as described were inefficient, after some thought and experiment I devised a method of securing the desired result with safety and efficiency, and have since put it in practice on many occasions. It will afford me pleasure to describe this operation in detail, so that any of my *confrères* who may so elect can practice the same.

With the patient possessing a hypersensitive throat I first prescribe a course of treatment to reduce the sensitiveness thereof, which consists in the half-hourly employment of a gargle of potassium chloras accompanied by the frequent introduction into the mouth of the handle of a teaspoon, which is to be used alternately as a tongue depressor and as a soft palate elevator. In this way, generally in two weeks or so the quite sensitive throat becomes tolerant to the presence of instruments. At an appointed time I apply a solution of cocaine 10 per cent. with phenol 5 per cent., which produces some anæsthetic effect, and by its bitterness tends to detract the patient's attention from the pain incidental to the operation. I employ three electrode points, two being bent at right angles to the shaft, so that by reversing the electrode I can have a point bent either above, below, to the right or to the left as I may require. The third electrode point is very slightly curved and is likewise reversible. They are all made of No. 24 guage platinum wire and will heat quick-

ly. I use a current about 50 per cent. stronger than is required to produce a white heat of the electrode in the open air, so the most brief pressure on the contact button will thoroughly heat the point, and if left in contact for more than two seconds of time *in the open air* would probably produce fusion thereof. Such a point and current as described will, in use in the tissue, give the least pain with the best and most rapid results. During the operation the tongue depressor must be employed, and it occupies the patient's mind to have that instrument in charge. My first step is to dissect the tonsil away from its attachments to the pillars, generally entering the appropriate point cold, heating and burning out. For the upper portion of the pillars I use the point bent downwards and work in that direction. For the lower portion of the pillars I sometimes reverse the same point and work upwards. The point being entered cold and serving as a blunt tenaculum, the tonsil is lifted out and towards the median line, when the point is heated and burns its way out. Only a little is done at a time. The side attachments having been released, I next grasp the tonsil near its upper end with a suitable forceps, lift the same forward, and with the heated bent point dissect the tonsil little by little from its attachment below to the pharyngeal aponeurosis. The operation is of course somewhat tedious, and requires from fifteen minutes to possibly one hour's time. From five to twenty seconds' work is done at each attack, the remainder of the minute being lost by the patient resting. Unless the patient is restless, so that the electrode is caused to tear instead of burn through the tissue, there is little or no hæmorrhage. I have in some cases lost less than twenty drops of blood, and in no case has the hæmorrhage probably exceeded one ounce. The most difficult part of the operation is in getting

the upper end of the tonsil loosened. It is then very easy until the lower end is reached, by which time the loosened portion drops over on to the tongue, producing nausea. The principal points in the operation consist, firstly, in never operating while there is present a condition of acute inflammation; secondly, in constantly lifting the tonsil forward towards the median line while working; and lastly, in working slowly and doing but little at each stroke with a thoroughly heated point, which will always burn its way through the band of tissue engaged. I have also with satisfaction done this operation as described, for the removal of the indurated base of a tonsil remaining after a tonsillotomy. Immediately after the operation I have latterly been making a thorough application of "Eisen-glycerine" (a German preparation much used in Vienna, and consisting of equal parts of tinct. ferri chlor. and glycerine), and have found it to be efficient in tending to prevent as marked inflammatory reaction as frequently occurred prior to my adopting its use. I repeat this application daily for the first week, providing the patient calls at the office.

Succeeding the operation for a few days the throat is quite sore, which condition I combat by directing the frequent use as a gargle of a saturated solution of the bicarbonate of sodium, and for the first two or three nights the employment of the wet pack about the neck. If in twenty-four hours after the operation the inflammation has become quite pronounced and annoying, I prescribe a mixture composed of tr. of iron and chlorate of potash in glycerine—one dose containing from 6 to 12 minims of the iron and about 4 grs. of the potash, every two hours, and have in some cases prescribed this at the start as a prophylactic with apparent benefit; and I might remark here incidentally that this mixture also has a beneficial

influence upon the gastric catarrh, clearing the tongue and improving the appetite.

After the first few days, in place of the gargle of soda I substitute a saturated solution of potassium chloras, and have in some cases, where this was disagreeable to the patient, given instead a gargle of diluted tinct. of myrrh of the strength of about $\frac{1}{2}$ drachm of the tincture to the ounce of water. The amount of annoyance produced by the operation differs in different cases, being influenced in a measure by the size of the remaining wound, though to my mind it is more dependent upon the idiosyncrasy of the patient. In the several cases in which I have performed this operation I have not had reported any marked febrile disturbance, though in several cases the local inflammation has been considerable.

At a given séance but one tonsil should be removed, and generally about two weeks should intervene between operations. In a few cases, owing to the restlessness of the patient, the tonsil being operated upon was not completely removed at the first sitting. In such cases the operation was renewed at a later period, after the throat had become thoroughly healed. I have generally found the first operation to be of more annoyance to the patient than have been the one or more succeeding operations. As a result of this operation I have found that the post-nasal catarrh is almost invariably benefited and, also, that when in connection with the post-nasal catarrh there is a slight degree of middle ear deafness, the acuteness of hearing has been intensified. I also find the condition of pharyngitis improved, and in cases wherein there is neither stenosis of the nasal passages nor a condition of atrophic rhinitis, there follows an improvement in the dyspeptic symptoms with a general improvement of the health. In singing the voice is found to have become

clearer and more powerful in the high notes, and is not succeeded by hoarseness as before. Furthermore, the possibility of future attacks of tonsillitis is averted.

While the operation is not pleasant to undergo, the general report is that the pain is not so severe as would be expected, and that the most disagreeable feature thereof is the difficulty of combating the tendency to nausea. No patient as yet, after the first operation when both glands were diseased, as is generally the case, has failed to solicit the removal of the remaining tonsil. Between operations after the first tonsil has been removed, the general report is that there is a sensation of more room and comfort on the side which has been operated upon when compared with the opposite side. While to the uninitiated this operation might seem quite heroic, it is certainly not productive of one-half the annoyance and pain that is given in following the treatment by caustics, as chromic acid or London paste, both of which have been employed.

In this or any other operation upon the tonsil, owing to its proximity to the carotids, it is wise to consider the possibility of serious hæmorrhage. The approximate distance from the tonsil to the external carotid is three-fourths of an inch, and to the internal carotid is one-half inch, which distances may be materially increased by traction on the tonsil, owing to the free supply of loose cellular tissue posterior thereto. Bleeding after tonsillotomy is more to be feared from wounding the smaller arteries in that region, particularly the tonsillar or ascending pharyngeal. I personally do not regard the danger from hæmorrhage in the operation described to be anywhere near as great as when the tonsillotome is employed, which from its nature can only be employed when the gland is pronouncedly hypertrophied and projecting.

Furthermore, in the small diseased tonsil described for the treatment of which I advise electro-cautery dissection, owing to its small size the blood supply is not so great as in case of the more hypertrophied tonsil, and the small vessels, when divided by the hot point, are sealed. The operation completed, the wound is protected by a seared surface which it would seem would be far less likely to permit of the entrance or absorption of anything pernicious, than in case of the open wound after tonsillotomy. From four to six days after the operation, as the slough begins to separate, there is a slight secondary hæmorrhage, the amount of which is largely dependent upon the vigor with which gargles have been employed.

In acute parenchymatous tonsillitis, when prompt escape is not given to the imprisoned pus, it is prone to burrow in the adjacent cellular tissue and, when neglected, has produced perforation of a large vessel, followed with profound hæmorrhage. Such a result I do not believe to be possible from the operation which I have described, as the remaining wound is large and open, insuring good drainage and precluding the possibility of such dangerous result. In healing by granulation there occurs a filling up of any small or irregular depressions resulting from the operation, so as to give an even surface, and I have never as yet seen any cicatricial contractions resulting therefrom.

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